

Abingdon, near Oxford, I swept up a worker of *A. (D.) niger*, which had two specimens of this *Antennophorus* on its head, a ♂ and ♀, one on the chin of the ant, the other on the upper surface of its head. The mites were evidently courting, as they kept vibrating the front legs very rapidly, and tapping at each other round the ants' jaws. It is very unusual to find *Antennophori* on ants outside the nest.

In June, 1914, Mr. P. A. Buxton sent me up a few tubes of ants which he had taken on Caldey Island, Pembrokeshire. In one of these, which contained some specimens of *A. (D.) niger*, I found a few examples of *Antennophorus foreli*, one of which was a ♂.

These are the only British records for this species.

*Spharolalaps calcariger*, Berl.—In searching through my material of *S. holothyroides* for ♂♂; I found a specimen of a mite (taken by me in a nest of *A. (C.) mictus* at Box Hill on May 23rd, 1913) which I at once recognised as a distinct species, and which appears to me to be *S. calcariger*, Berl., a species new to Britain. Berlese records it from the same host. I have sent it to Mr. Hull for confirmation, but all he can say at present is that it is new to him and to Britain.

#### ARANEINA.

*Tetrilus arietinus*, Thor.—An immature ♂, and several ♀♀ (the *T. diversa*, Camb.) were captured in the Woking *fuliginosus* nest on October 7th. The adult male of this spider has only once been taken in Britain, when I first discovered the species here in a nest of *P. rufa* at Oxshott on April 19th, 1900. I am indebted to Dr. A. R. Jackson for the names.

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### Hippodamia variegata, Goeze.

By G. B. C. LEMAN, F.E.S.

I.—Descriptions of new aberrations:—

(1) ab. **Donisthorpei**, n.ab.

While going through Mr. Horace St. John Donisthorpe's series of this species, I noticed a variety with an arrangement of the spots, for which I have not found any name recorded.

The distinguishing feature is the somewhat unusual confluence in this species of spots  $\frac{1}{2}$  and 3, and its formula is 1, 3 +  $\frac{1}{2}$ , 4, 5, 6. The marks on the thorax are the usual isolate two small spots and the short medial line.

Mr. Donisthorpe's specimen was taken by him on September 29th, 1920, at Barton Mills, and the type is in his collection.

Confluence with spot  $\frac{1}{2}$  is not common in this species and occurs, as far as I can trace any records, in the following aberrations:—

ab. *ustulata*, Ws. [1879], formula 1, 2, 3 +  $\frac{1}{2}$ , 4 + 5, 6.

ab. *italica*, Walt. [1882], formula 1, 2, 3 +  $\frac{1}{2}$ , 4, 5, 6.

ab. *macrostigma*, Gabriel [1905], formula  $\frac{1}{2}$  + 3 + 5 (in an irregular design), 4.

According to Weise [B.T. 1885] it also occurs in a subvariation of his ab. *maculigera*:—

“h.) P. 4 + 5 + 6 zu einer dicken und förmigen Zeichnung oder zu einer grossen, eckigen Makel vereint. Gleichzeitig kann auch P.  $\frac{1}{2}$  + 3 verbunden sein, oder es fehlen die Punkte 3, 2, und 1 gänzlich.  
... v. *maculigera*, Weise.”

So far, however, as the confluence of spots  $4+5+6$ , coupled with the other spots mentioned by Weise, is concerned, this is the formula of ab. *turkmenica*, Zoubk., described in *Soc. Imp. Nat. Mosc.*, vi. p. 339 [1833], viz., 1, 2, 3,  $4+5+6$  (in an irregular blotch),  $\frac{1}{2}$ . Weise appears to have overlooked Zoubkoff's aberration and to this extent, therefore, the ab. *maculigera*, Ws., sinks as a synonym of ab. *turkmenica*, Zoubk.

There remain, however, two subvariations of Weise's ab. *maculigera* for which no names exist and these I propose to name.

(2) ab. **Maculigera** (Weise) n.ab.

This aberration is described by Weise in his B.T. [1885] as a sub-variation of his ab. *maculigera*, which latter with formula 1, 2, 3,  $4+5+6$ ,  $\frac{1}{2}$  is a synonym of ab. *turkmenica*, Zoubk. [1833].

I propose to keep Weise's name for this aberration and its formula is: 1, 2,  $3+\frac{1}{2}$ ,  $4+5+6$ , the latter, three spots being in an irregular blotch.

(3) ab. **Zoubkoffi**, n.ab.

This aberration is described by Weise in his B.T. [1885] as a sub-variation of his ab. *maculigera*, which with its formula of 1, 2, 3,  $4+5+6$ ,  $\frac{1}{2}$  sinks as a synonym of ab. *turkmenica*, Zoubk. 2374 342

I propose therefore to name this aberration after Zoubkoff to distinguish it from ab. *maculigera*, Ws. Its formula is:  $4+5+6$  (in an irregular blotch),  $\frac{1}{2}$ .

II.—Some observations on var. e. of Gyllenhal's *C. mutabilis* and on the true type of ab. *immaculata*, Gmelin:—

(1) While searching through the many authors who have written on this species, I have found recorded by Hummel [1829] in *Essais. Ent.* t. 1. No. 7. p. 33 on *C. mutabilis*, Gyll. [= *H. variegata*, Goetz., ab. *similis*, Schrank, with 13 spots] an aberration which he refers to as the var. e. of Gyllenhal [1827] *Ins. Suec.* T. f. pars. iv. p. 211.

"Var. e. . . . elytra puncto tantum unico communi juxta scutellum. Habitat in plantis, oleribus, apud nos rarius; var. e. in Scania ad Ystad capta, a Dom. Prof. Zetterstedt communicata." 3382

It will be noted that Gyllenhal distinctly states his var. e. has the  $\frac{1}{2}$  spot and it cannot therefore be referred to ab. *immaculata*, Gmel., as Mulsant, Weise, Ganglbauer and others have grouped it.

Gmelin's [1790] original description from his *Ed. Linn.* I. 4. p. 1644. No. 155 runs as follows:—

"Immaculata. 155. *C. coleoptris flavescens*ibus, immaculatis, thoracis macula nigra: punctis duobus albis. *Mus. Lesk.* p. 11. no. 211. Habitat in Suecia."

On referring to Zschach's [1789] description on Leske's Collection, he appears to describe, without assigning any specific name to it, an impunctate Coccinellid:—

"211. *Cocc. impunctata*, coleoptris flavescensibus, puncto nullo, thorace macula nigra, in qua puncta duo alba."

I think it is quite clear from the above text and from Zschach's mode of describing other Coccinellids that he is using the term, "impunctata," in a purely adjectival sense and not as a specific name, and consequently the ab. *immaculata*, Gmel. stands for the aberration with no spots whatever on the elytra.

Mulsant [1846] *Secur.* p. 40 under *A. mutabilis* var. B. enlarges Gmelin's original description, a proceeding for which I find no authority:—

“Var. B. Elytres sans tache ou n'offrant qu'une tache juxta scutellaire, commune aux deux etuis.”

“*Coccinella impunctata*, Zschach. *Mus. Lesk.* p. 11. no. 211. . . .

“*Coccinella immaculata*, Gmel., *C. Linn. Syst. Nat.*, p. 1644. 155.

“*Coccinella mutabilis*, Gyllenh., *Ins. Suec.* t. 4. p. [sic] var. e.”

Similarly Weise [1879] B.T. incorrectly describes Gmelin's ab. *immaculata* as:

“a. Flg. mit 1 P.  $\frac{1}{2}$  . . . v. *immaculata*, Gmel.”

which, equally incorrectly, in 1885 he enlarges into:—

“a. Flg. ohne schwarze P. oder nur mit dem gemeinschaftlichen am Schildchen . . . v. *immaculata*, Gmel.”

Stierlin [1886] in *Col. Helv.* II., Ganglbauer [1889] in *Käf. Mitteleur.* L'Abeille [1892] in *Jour. d'Ent.* T. xxviii. and Reitter [1911] in *Faun. Germ.* III. p. 137, No. 17, fall into the same error, following Weise's description of 1885.

I propose therefore to name the var. e. of Gyllenhall to distinguish it from ab. *immaculata*, Gmel.

(2) ab. **Scutellopunctata**, n.ab.

*C. mutabilis*, Gyll. [1827], *Ins. Suec.* T. 1, pars. 4, p. 211, No. 47, var. e.

This aberration is described by Gyllenhall, without any specific name, as having only the common scutellar spot.

It was subsequently grouped by Mulsant, Wiese, Stierlin, Ganglbauer, L'Abeille and Reitter under ab. *immaculata*, Gmel., but as this latter is devoid of any spots, it cannot be properly referred to such aberration.

The formula therefore for this aberration will be:  $\frac{1}{2}$ .

Gyllenhall states that his var. e. was taken in Scania at Ystad and that it is rare in his country (Sweden). His authority was Zetterstedt.

(3) To return to Hummel, he also describes a new aberration, but without assigning to it any specific name:—

“Thorace radio in medio brevissimo et punctis utrinque minutis albidis, elytris puncto unico pone medium ad marginem.”

If as seems probable, as Hummel was writing on variations of *C. mutabilis* (which, as *H. variegata*, Goetz., ab. *similis*, Schrank, has 13 spots including the  $\frac{1}{2}$  spot), this aberration had the  $\frac{1}{2}$  spot present, then it corresponds in its formula of 4,  $\frac{1}{2}$  with the aberration named by Weise [1879] as ab. *hummeli*.

If, per contra, there was no  $\frac{1}{2}$  spot, but only the single spot 4, I find no record of any such named aberration.

III.—On the distinguishing characteristics of the sexes of this species collated from various authors:—

While working out this species and its aberrations I have collated such information as I have been able to obtain from the many authors I have consulted on the differences in sex, and I venture to append such data, in case it may prove useful to any other Collector interested in this species and help him to distinguish the sexes.

(1) Mulsant [1846] *Sécur.* p. 39 gives the following general differentiation;—

“ ♂ Premier article des tarses antérieures ovale, sensiblement plus large dans son milieu que le deuxième article, garni de ventouses en dessous.

“ ♀ Premier article des tarses antérieures subparallèle ou faiblement rétréci d'avant en arrière, plus étroit que le deuxième article, dépourvu de ventouses en dessous.”

And on p. 41, adds the following particular differences:—

“ Tête triangulaire; subperpendiculaire d'un flave faune (♂) ou noire (♀) sur le labre; parée sur le vertex et la partie postérieure au front d'un bandeau noir, ordinairement bidenté en devant; blanche sur l'épistome et la partie antérieure du front; souvent marquée de deux points ou traits noirs (♂) réunis en une tache presque carrée, isolée ou liée avec le bandeau noir précité (♀). . . cuisses noires; les antérieures en partie d'un fauve flave (♂). Jambes de la première paire entièrement de la même couleur (♂) ou obscures sur l'arrête (♀). Les suivantes en partie noires. Tarses roussâtres avec l'extrémité et les ongles noirs (♂ ♀).”

(2) Thomson [1866] *Skand. Col.* Tom. viii. p. 340:—

“ Mas: tarsi anterioribus articulo 1: o fortiter ovali: dilatato: femoribus anticis subtus tibiisque totis ferrugineis.

“ Femina: segmento 6: o medio striga impressa.”

(3) Bedell [1892]. *L'Ab. Journ. d'Ent.* T. xxviii. No. 1, p. 10. Note on *C. mutabilis*:—

“ L'épistome, entièrement blanc chez les mâles, porte, chez les femelles, deux points noirs fréquemment confluentes. Les trochanters et le dessous des fémurs antérieurs, ordinairement roux chez les mâles, sont noirs chez les femelles.—L.B.”

(4) Ganglbauer [1899] *Käf. Mitteleur.* III.:

As to the head:—

“ Der Kopf gelb mit einer breiten, schwarzen, meist zweilappigen Querbinde auf dem Scheitel und beim ♀ auch mit einem viereckigen, bisweilen in zwei Längstreifen aufgelösten Fleck auf der vorderen Partie der Stirn.”

As to the tarsi:—

“ Die Vorder—und Mitteltarsen, rothlichgelb, beim ♂ oft nur die Aussenseite der Vorderschenkel schwarz.”

(5) Fowler [1889] *Col. Br. Isles*, III. p. 159:—

He distinguishes (inter alia) *H. variegata*, Goetz., from *H. 13-punctata*, L., by the first joint of the anterior and intermediate tarsi of the former being dilated in the male. On p. 160 Fowler adds that the male has the first joint of the anterior tarsi oval and dilated.

### A few Notes on Orthoptera in Croatia.

By MALCOLM BURR, D.Sc., F.E.S.

In spite of the splendid summer, I have had practically no opportunity of collecting this season, but been able merely to make a few notes and observations on the commoner species.